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(56) Documents cited
GB 1556891 A GB 1077733 A GB 0868698 A
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(54) Improvements in or relating to a glazing bar

(57) A glazing bar comprises a support member 2, a clamping member 3 and plurality of seals 38, 39 adapted to be mounted upon the support member and the clamping member. The clamping member 3 is adapted to be mounted upon the support member 2 so as to clamp an edge of a sheet of glazing material 6 between the seals 38, 39 associated with the support member 2 and the clamping member 3. The support member 2 defines at least one fixing channel 13, the support member 2 being mountable upon a structural member (not shown) by way of mounting means, e.g. screws, extending through the fixing channel(s) 13. A cover is provided which is receivable upon each fixing channel 13 in order to close the channel and prevent the ingress of water into the channel, the cover being constituted by the seal 38.

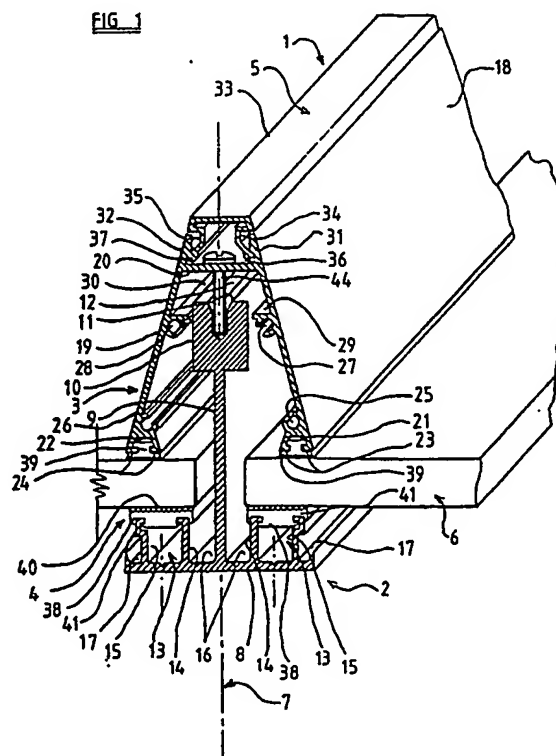


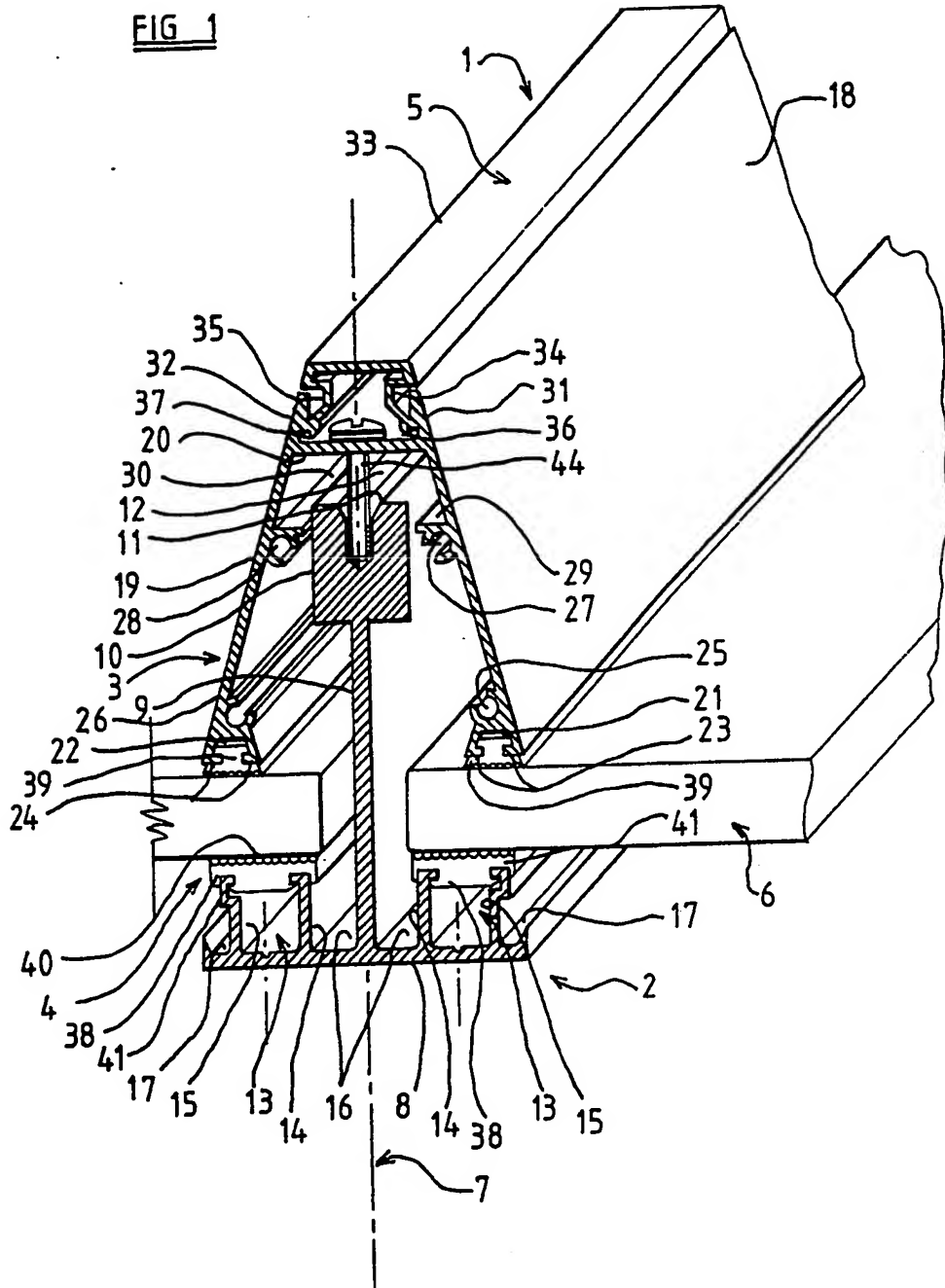
FIG 1

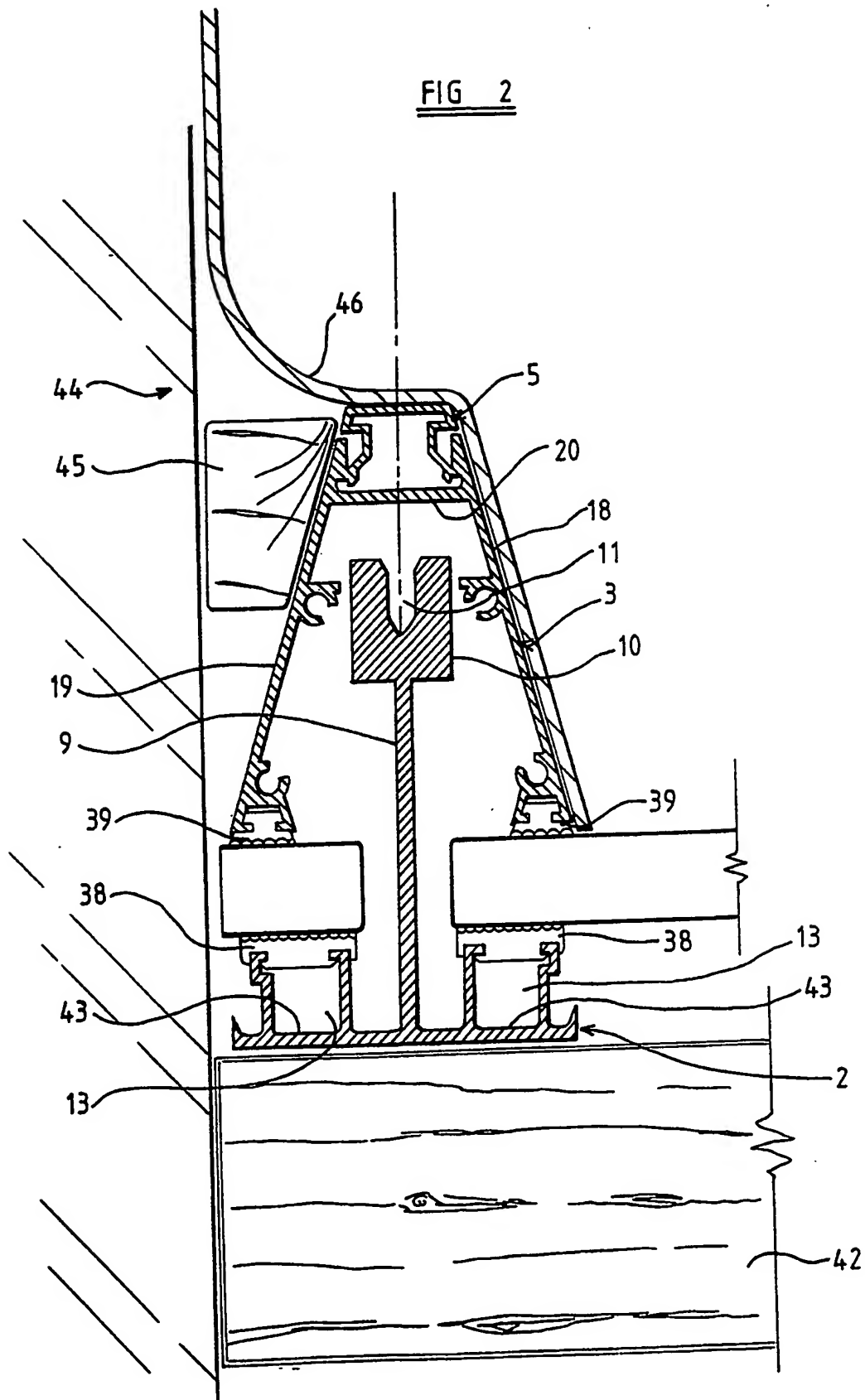
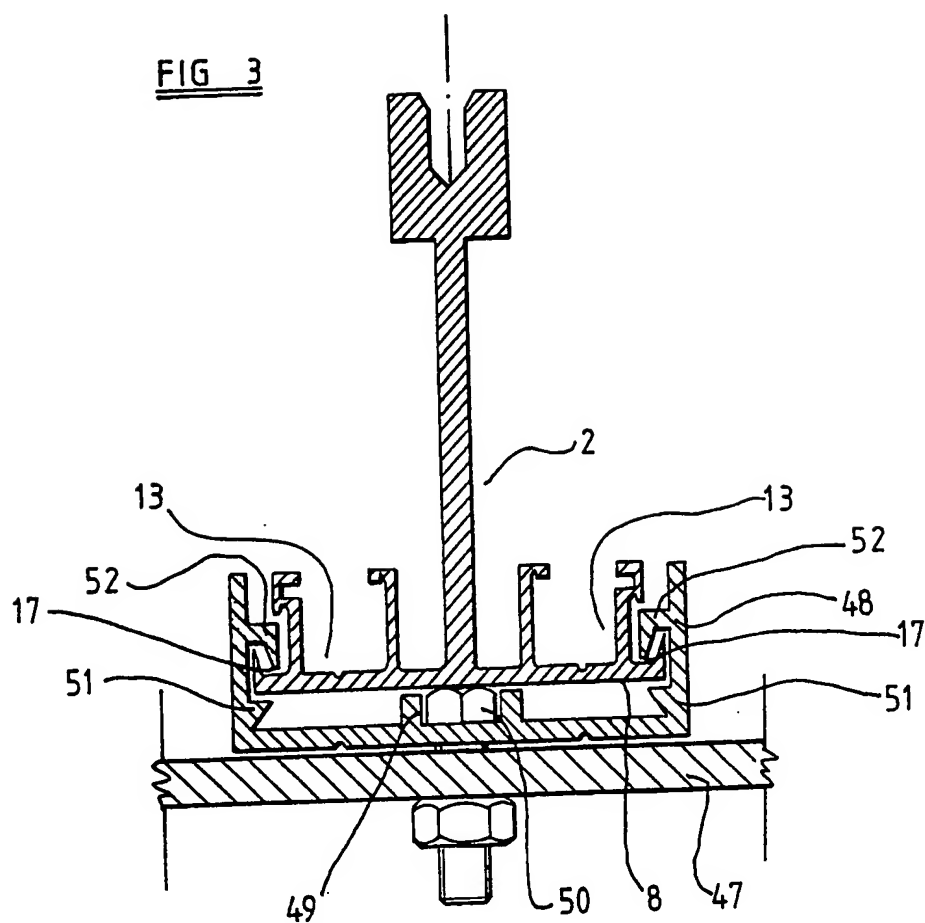
FIG 2

FIG 3



Description of Invention

"Improvements in or relating to a glazing bar"

THE PRESENT INVENTION relates to a glazing bar such as may be used in so-called patent glazing applications, i.e. glazing applications where sheets of glazing material are secured together to form roof coverings or the like without using conventional sashes and putty.

In such glazing applications a glazing bar receives the edges of, and supports, a sheet of glazing material, for example glass or a plastics material such as polycarbonate. The glazing bar is mounted on a rigid structural member of a roof if the glazing material is to form a roof covering or on a structural member of a building where the glazing material is used in a vertical arrangement for a cladding.

Glazing bars are provided with drainage channels which allow any water which may leak into the glazing bar to drain away. A problem with some prior proposed glazing bars is that the bars are secured to a structural member by way of bolts, screws or the like which pass through apertures in the drainage channels. With this arrangement the mounting means, i.e. the components which secure the glazing bar to a structural member are left exposed to any water which leaks into the drainage channels and thus the mounting means may become corroded or water may leak through small gaps left in the drainage channel by the mounting means. This can be a particular problem where the structural member is a timber beam and thus the beam could become

damp and eventually rot. A further problem with some previously proposed glazing bars is that they are particularly difficult to mount upon a structural member. This is often the case where a box section is used to form the part of the glazing bar which is to be mounted upon a structural member.

The present invention seeks to provide an improved glazing bar which does not suffer from the above-mentioned disadvantages.

According to the present invention there is provided a glazing bar, said glazing bar comprising a support member, a clamping member and a plurality of seals adapted to be mounted upon the support member and the clamping member, the clamping member being adapted to be mounted upon the support member so as to clamp an edge of a sheet of glazing material between the seals associated with the support member and the clamping member, said support member defining a fixing channel and being mountable upon a structural member by way of mounting means extending through said fixing channel, there being a cover receivable upon said fixing channel in order to close the channel and prevent the ingress of water into the channel.

Preferably said cover is constituted by one of said seals.

Conveniently said support member also defines one or more drainage channels.

Advantageously said support member defines, in cross-section, a base, an upstanding wall, one fixing channel formed integrally with the said base on each side of said wall and at least one drainage channel on each side of said wall.

Preferably two drainage channels are provided on each side of said wall, said two drainage channels on each side of said wall being located on opposite sides of said fixing channel.

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Conveniently said fixing channel is defined between two upstanding arms formed integrally with said base, the free ends of the arms being inwardly directed towards each other so that said seals are mountable upon
10 said free ends by way of appropriately dimensioned grooves provided in the seals.

Advantageously said upstanding wall defines, at its upper end, a thickened region within which a
15 groove is formed, said groove being provided with a plurality of longitudinally extending V-shaped recesses which constitute means to engage a screw thread.

Preferably said clamping member is sym-
20 metrical in cross-section and defines two interconnected legs, one on each side of the axis of symmetry of the clamping member.

Conveniently said legs are inclined relative
25 to said axis of symmetry, said legs tapering towards each other in a direction towards their upper ends, the legs being interconnected adjacent their upper ends by means of a web.

30 Advantageously said clamping member is adapted to be mounted upon the upper end of said upstanding wall of the support member by means of a screw passing through said web and engaging in the groove formed in the thickened region of the said wall.

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A cap may be provided for mounting upon the upper end of the clamping member.

Conveniently one or more apertures are provided at the free ends of the clamping member, and said bar further comprises an end plate mountable upon the free ends of the bar by way of screws or the like extending through the plate into said apertures.

The glazing bar may further comprise a shoe designed to receive the support member by engaging lips provided along edges of the support member, the shoe being mountable upon a structural member by way of appropriate mounting means.

The invention also provides a glazing unit incorporating a glazing bar as described above.

In order that the present invention may be more readily understood and so that further features thereof may be appreciated, the invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a glazing bar according to the present invention;

Figure 2 is an end view of the glazing bar of Figure 1 when the bar is positioned at the edge of a glazing covering; and

Figure 3 is an end view of a part of the glazing bars of Figures 1 and 2 when mounted in position by way of a mounting shoe.

Referring initially to Figure 1 of the drawings, a glazing bar 1 comprises a support member 2, a clamping member 3, a plurality of seals 4 and a snap-in-cap 5. The glazing bar is adapted to receive a sheet of glazing material 6 between the support member 2 and

the clamping member 3, the glazing material 6 being engaged on opposite surfaces by the seals 4 which are mounted upon the support member 2 and the clamping member 3. The support member 2, the clamping member 3 and the cap 5 are all formed as aluminium extrusions. The glazing bar 1 is symmetrical in cross-section about a vertical axis 7.

Dealing with each of the components in turn, it can be seen from Figure 1 that the support member 2 has a planar base 8 and a centrally located upstanding wall 9, which wall has a thickened region 10 at its free end. The thickened region 10 is provided with a longitudinally extending groove 11, the groove having a tapering entrance 12. The groove 11 is provided with a plurality of longitudinally extending, V-shaped recesses which constitute means to engage a screw thread inserted into the groove. The support member 2 also defines a fixing channel 13 on either side of the wall 9, each fixing channel 13 being defined between an inner arm 14, and an outer 15 which are formed integrally with the base 8. The free ends of the arms 14, 15 are directed inwardly towards each other such that a seal 4 may be mounted upon the free ends of the arms. The support member 2 also defines a pair of inner drainage channels 16 and a pair of outer drainage channels 17. The inner drainage channels 16 are defined between the upstanding wall 9 and each inner arm 14, whilst the outer drainage channels 17 are defined between each outer arm 15 and the free edges of the support member 2.

The clamping member 3 defines two inclined legs 18, 19 which are interconnected adjacent their upper ends by means of a web 20. Each leg 18, 19 defines at its lower end a channel 21, 22 between inwardly directed fingers 23, 24 respectively. A lower horse-shoe-shaped rib 25, 26 is provided on the internal

surface of each leg 18, 19 immediately adjacent and above the channels 21, 22. A further horseshoe-shaped rib 27, 28 is formed integrally on the internal surface of each leg 18, 19 between the ribs 25, 26 and the web 20. A narrow, horizontal platform 29, 30 is provided immediately above each upper horse shoe-shaped rib 27, 28. The internal surface of each horseshoe-shaped rib 25, 26, 27, 28 is dimensional so that a screw may be inserted into the aperture constituted by the open end of any one of the ribs, and screwed into the rib.

An arcuate, longitudinally extending projection 31, 32 is provided on the internal surface of each leg 18, 19 above the web 20. These projections are provided so that the cap 5 may be snapped-fitted into position on the upper end of the clamping member 3. The cap 5 comprises a planar upper surface 33 provided with two inclined side walls, the inclination of the side walls corresponding with the inclination of the legs 18, 19. The side walls extend inwardly at their lower ends and then downwardly to form two depending, resilient legs 34, 35 each carrying, at its lower end, an arcuate foot 36, 37, adapted to form a snap-fitting engagement with the lower edge of the projections 31, 32 respectively.

The set of seals 4 comprise two supporting seals 38 adapted to be mounted upon the free ends of the arms 14, 15 which define the fixing channels 13 of the support member 2 and two clamping seals 39 adapted to be mounted on the inwardly directed fingers 23, 24 which define the channels 21, 22 at the lower edges of the clamping member 3. The supporting seals 38 and clamping seals 39 are received within the respective channels upon the supporting member and the clamping member by means of longitudinally extending grooves formed in the sides of the seal, within which the free ends of the

arms 14, 15 and the inwardly directed fingers 23, 24 are received. Each of the seals 38, 39 has a ribbed surface 40 which, when the glazing bar is in use, engages the outer surface of the sheet of glazing material 6. Each supporting seal 38 is formed along one edge with an integral drip bar 41. When the supporting seals 38 are mounted upon the free ends of the arms 14, 15 the drip bar extends down the outside of the outer arm 15 and will serve to guide any condensation which forms on the outside of the seal 38 into the drainage channel 17. The seals 38, 39 are formed from a synthetic rubber such as a neoprene rubber.

As mentioned above the glazing bar may be used in applications where a roof covering is to be provided or in vertical applications where so-called building cladding is to be provided. In order to assemble the glazing bar, the support member 2 is initially secured to a structural member 42 (see Figure 2) at intervals along its length. Where the structural member is a timber beam or the like the support member 2 may be screwed directly onto the beam by way of screws passing through the fixing channels 13. The base of each fixing channel 13 is provided with a longitudinally extending notch 43 which is intended to facilitate the drilling of appropriate holes to receive the screws. The design of the glazing bar is such that a span of between 4 to 5 metres can be covered by the glazing bar without requiring any intermediate supports in the form of further structural members. Once the support member 2 has been secured to the structural member 42 the supporting seals 38 may be slidably mounted upon the free ends of the arms 14, 15. It will be appreciated that the supporting seals 38 now fully enclose the screws securing the support member to the structural member 42, thus preventing the ingress of any water to this area.

The clamping seals 39 are now slidably mounted upon the inwardly directed fingers 23, 24 at the free ends of each leg 18, 19 of the clamping member. The clamping member 3 is now aligned upon the upstanding wall 9 of the support member 2, so that the free end of the wall 9 is received centrally between the upper horseshoe-shaped ribs 27, 28. The edges of sheets of glazing material 6 are rested upon the supporting seals 38 and the clamping member 3 is then further lowered over the upstanding wall 9 so that the clamping seals 39 engage the upper surface of the sheet of glazing material. Screws 44 (see Figure 1) are then passed through appropriately located apertures in the web 20 and are screwed in the groove 11 in the thickened region 10 at the free end of the wall 9. As the screws 44 are tightened the clamping member 3 is drawn in a downwards direction so that the clamping seals 39 engage tightly upon the surface of the sheet of the glazing material 6 in order to retain the sheet firmly in position between the support member 2 and the clamping member 3. A washer may be provided between the screw head and the upper surface of the web 20 if necessary.

The cap 5 may now be snapped into place upon the upper end of the clamping member 3 so that the heads of the screws 44 are fully enclosed and protected from the effects of weathering. An appropriately configured end plate (not illustrated in the drawings) may be positioned over the ends of the glazing bar and secured thereto by way of screws, or the like extending through the end plate and being received in the apertures defined by the open ends of the the horseshoe-shaped ribs 25, 26, 27 and 28.

Figure 2 illustrates the use of the glazing bar at the edge of a roof covering. The glazing bar is assembled in position in the manner described above,

with only a short section of glazing material being provided on the side of the glazing bar which is adjacent the edge of the roof covering. As can be seen from Figure 2 the roof covering ends adjacent a wall or the like 44. An appropriately shaped length of timber is inserted between the wall 44 and the leg 19 of the clamping member 3 to serve as a packing-piece 45. A lead flashing 46 can be placed over the glazing bar once the bar has been fully assembled.

10 It will be appreciated that when fully assembled the glazing bar provides a fully enclosed arrangement which is particularly advantageous in preventing the ingress of water through a roof covering or the like since all of the mounting means, where leakage may otherwise occur, are fully enclosed. Should any water leak past the clamping seal 39 this water will fall into the drainage channel 16 and be carried away. Should any water succeed in leaking past the clamping seal 39 and then past the supporting seal 38 this water will be guided into the drainage channel 17 by the drip bar 41 and will again be carried away into a gutter or the like at one end of the roof covering. Thus the glazing bar of the present invention provides a particularly weatherproof interconnection between sheets of glazing material 6.

In certain applications it may be necessary to secure the supporting member 2 to a structural member formed of metal. In such an application it would not be possible to screw the supporting member 2 directly into the metal structural member. Figure 3 illustrates a method of securing the support member 2 to a metal structural member 47. In order to secure the support member 2 to the metal structure member 47 an intermediate mounting shoe 48 is used. The mounting shoe 48 is again formed as an aluminium extrusion and has a sub-

stantially channel-shaped cross-section. The mounting shoe is symmetrical in cross-section and defines a longitudinally extending channel 49 centrally upon the inside surface of its base. The channel 49 is provided with bore holes designed to receive bolts 50 by way of which the shoe 48 may be secured to the structural member 47. The free arms of the shoe 48 are each provided with a longitudinally extending ledge 51 together with an L-shaped, inwardly and downwardly directed projection 52. The ledges 51 and projections 52 are designed so that the support member 2 may be slidingly received within the mounting shoe, with the planar base 8 being supported upon the ledges 51 and the projections 52 engaging within the drainage channels 17. Once the support member 2 has been secured to the structural member 47 the remaining assembly of the glazing bar is effected in the manner as described above.

It will be appreciated that numerous modifications and alterations to the above described design of glazing bar may be made within the scope of the present invention.

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CLAIMS:

1. A glazing bar, said glazing bar comprising a support member, a clamping member and a plurality of seals adapted to be mounted upon the support member and the clamping member, the clamping member being adapted to be mounted upon the support member so as to clamp an edge of a sheet of glazing material between the seals associated with the support member and the clamping member, said support member defining a fixing channel and being mountable upon a structural member by way of mounting means extending through said fixing channel, there being a cover receivable upon said fixing channel in order to close the channel and prevent the ingress of water into the channel.
2. A glazing bar according to claim 1, wherein said cover is constituted by one of said seals.
3. A glazing bar according to claim 1 or claim 2, wherein said support member also defines one or more drainage channels.
4. A glazing bar according to any one of claims 1 to 3, wherein said support member defines, in cross-section, a base, an upstanding wall, one fixing channel formed integrally with the said base on each side of said wall and at least one drainage channel on each side of said wall.
5. A glazing bar according to claim 4, wherein two drainage channels are provided on each side of said wall.
6. A glazing bar according to claim 5, wherein said two drainage channels on each side of said wall are located on opposite sides of said fixing channel.

7. A glazing bar according to any one of claims 4 to 6, wherein said fixing channel is defined between two upstanding arms formed integrally with said base, the free ends of the arms being inwardly directed towards each other so that said seals are mountable upon said free ends by way of appropriately dimensioned grooves provided in the seals.

8. A glazing bar according to any one of claims 4 to 7, wherein said upstanding wall defines, at its upper end, a thickened region within which a groove is formed, said groove being provided with a plurality of longitudinally extending V-shaped recesses which constitute means to engage a screw thread.

9. A glazing bar according to any one of the preceding claims, wherein said clamping member is symmetrical in cross-section and defines two interconnected legs, one on each side of the axis of symmetry of the clamping member.

10. A glazing bar according to claim 9, wherein said legs are inclined relative to said axis of symmetry, said legs tapering towards each other in a direction towards their upper ends, the legs being interconnected adjacent their upper ends by means of a web.

11. A glazing bar according to claim 10, as dependent upon claim 8, wherein said clamping member is adapted to be mounted upon the upper end of said upstanding wall of the support member by means of a screw passing through said web and engaging in the groove formed in the thickened region of the said wall.

12. A glazing bar according to any one of claims 9 to 11, wherein a cap is provided for mounting upon the upper end of the clamping member.

13. A glazing bar according to any one of the preceding claims, wherein one or more apertures are provided at the free ends of the clamping member, and said bar further comprises an end plate mountable upon the free ends of the bar by way of screws or the like extending through the plate into said apertures.

14. A glazing bar according to any one of the preceding claims, wherein said bar further comprises a shoe designed to receive the support member by engaging lips provided along edges of the support member, the shoe being mountable upon a structural member by way of appropriate mounting means.

15. A glazing bar substantially as herein described, with reference to, as shown in the accompanying drawings.

16. A glazing unit incorporating a glazing bar according to any one of the preceding claims.

17. Any novel feature or combination of features disclosed herein.